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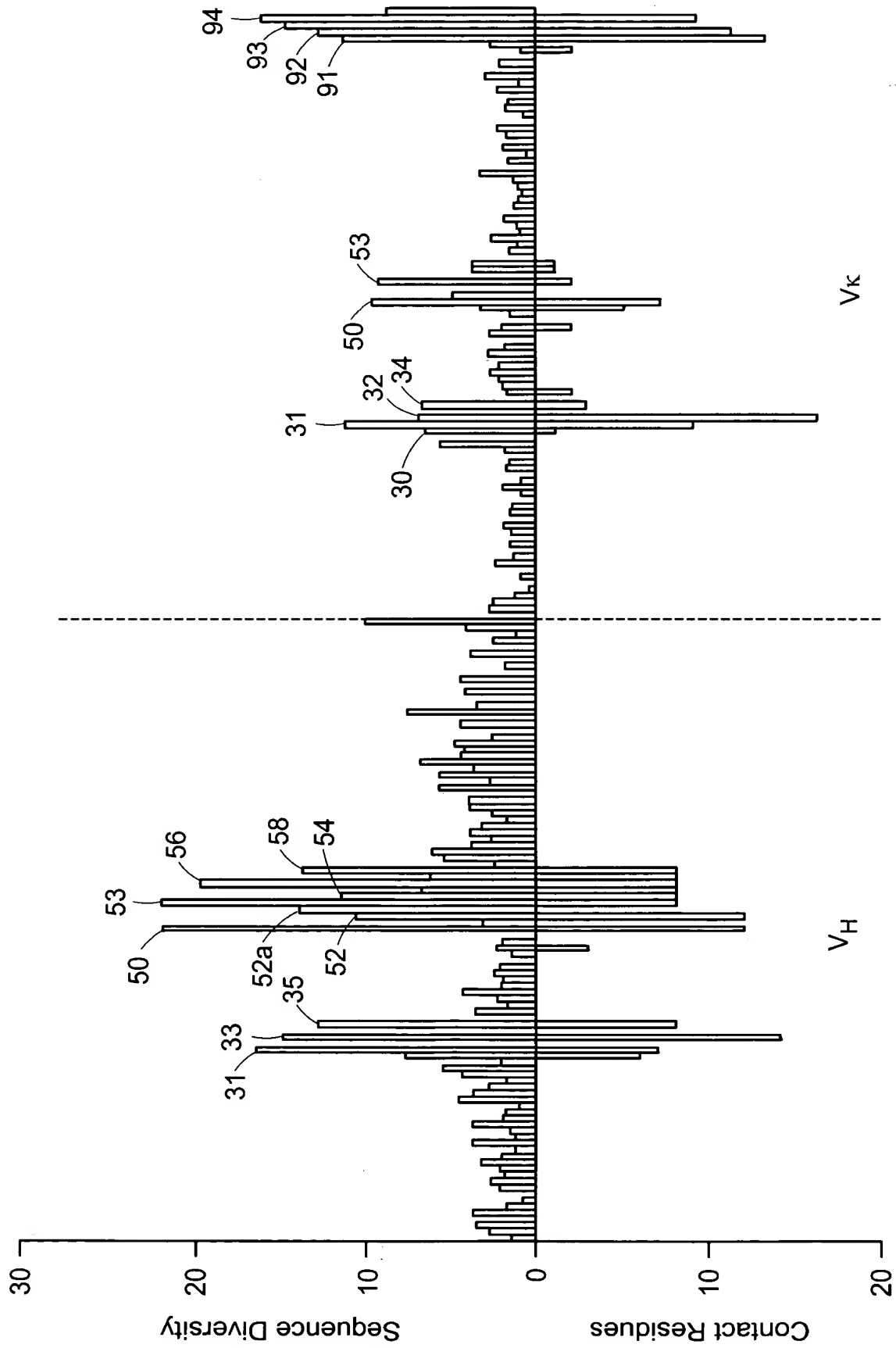


FIG. 1

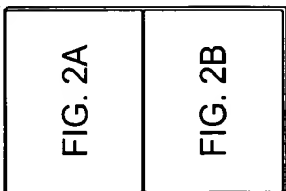


FIG. 2

FIG. 2A

H1 H10 H20 H30  
E V Q L L E S G G L V Q P G G S L R L S C A A S G F T F S  
GAG GTG CAG CTG TTG GAG TCT GGG GGA GGC TTG GTA CAG CCT GGG TCC CTG AGA CTC TCC TCT GCA GCC TCT GGA TTC ACC TTT AGC

H40 H50 H52 a H50 H52 a  
S Y A M S W V R Q A P G K G L E W V S A I S G S G S T Y Y  
AGC TAT GCC ATG AGC TGG GTC CGC CAG GCT CCA GGG AAG GGG CTG GAG TGG GTC TCA GCT ATT AGT GGT AGT GGT AGC ACA TAC TAC  
HCDR1 HCDR2

H60 H70 H80 H82 a b c  
A D S V K G R F T I S R D N S K N T L Y L Q M N S L R A E D  
GCA GAC TCC GTG AAG GGC CGG TTC ACC ATC TCC AGA GAC AAT TCC AAG AAC ACG CTG TAT CTG CAA ATG AAC AGC CTG ACA GCC GAG GAC

H90 H98 H100 H110 H113  
T A V Y Y C A K S Y G A F D Y W G Q G T L V T V S S G G G  
ACG GCC GTA TAT TAC TGT GCG AAA AGT TAT GGT GCT TTT GAC TAC TGG GGC CAG GGA ACC CTG GTC ACC GTC TCG AGC GGT GGA GGC GGT  
HCDR3 XhoI

S G G G S G G G G G C T D I Q M T Q S P S L S A S V G D R  
TCA GGC GGA GGT GGC AGC GGC GGG TCG ACC GAC ATC CAG ATG ACC CAG TCT CCA TCC TCC CTG TCT GCA TCT GTA GGA GAC AGA

L1                      L10

Sal I

L20                      L30                      L40

V T I T C R A S Q S I S S Y L N W Y Q K P G K A P K L L I  
GTC ACC ATC ACT TGC CGG GCA AGT CAG AGC ATT TAC AGC TAT TTA AAT TGG TAT CAG CAG AAA CCA GGG AAA GCC CCT AAG CTC CTG ATC

LCDR1

[illegible][illegible]

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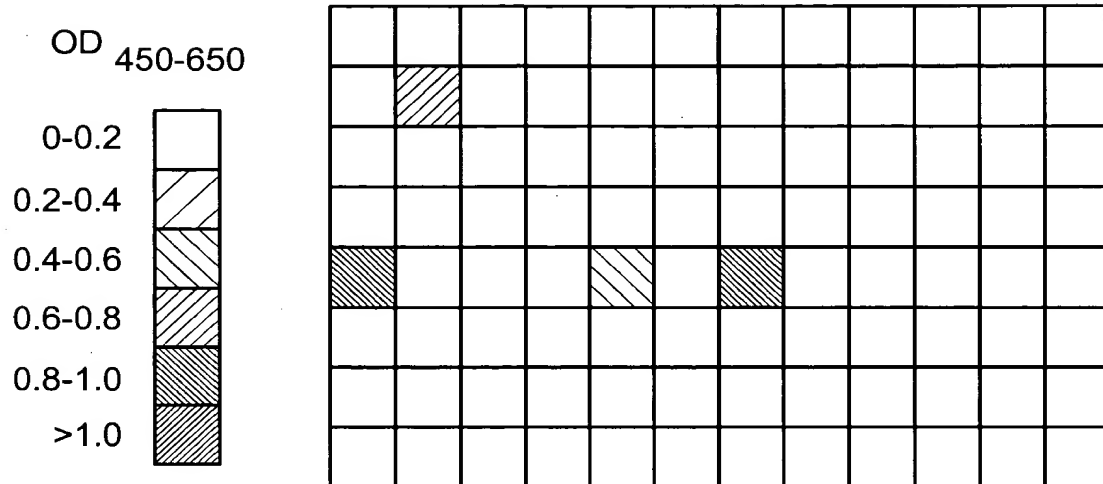
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☒ Diversified in "Primary" and "Somatic" libraries

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"Primary" NNK library before pre-selection



"Primary" NNK library after pre-selection

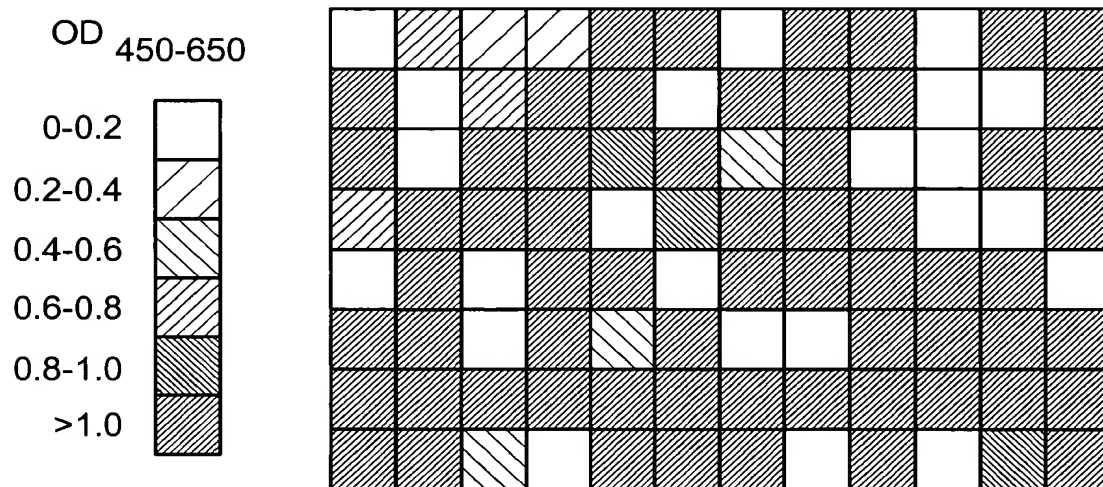


FIG. 3

FIG. 4A

FIG. 4B

FIG. 4C

FIG. 4



Clones	Heavy chain (framework DP-47)				Light chain (framework DPK9)				No*
	Antigen	Library	CDR1	CDR2	CDR3	CDR1	CDR2	CDR3	
UBIA 1-9	Bovine ubiquitin	Primary NNK	SYAMS	IIGSEGWPTIYADSVKG	GGSMFDY	RASQSISSYLN	RASSLQS	QQSSNTPTYT	9
UBIB 1,3-10	"	SomaticNNK	AVAMT	AISGGGSTVYADSVKG	KASSFDY	RASQSISSYLN	AASSLQS	QQSYSTPST	9
BIPAL-3,6,9	RatBIP	PrimaryNNK	SYAMS	LISPLGKDTSYADSVKG	RAGIFDY	RASQSISSYLN	HASRLQS	QQYRLRPILT	5
BIPA4	"	"	SYAMS	GIRRVGQATSYADSVKG	GGRLFDY	RASQSISSYLN	YASHLQS	QQYLIDPVT	1
BIPA5,7,9	"	"	SYAMS	AINTKGMTTDYADSVKG	GSOAFDY	RASQSISSYLN	QASFLQS	QQGYNKPRT	3
BIPB1-4,6-10	"	SomaticNNK	NYQMH	AISGGGSTVYADSVKG	GTRRFDY	RASQSISSYLN	AASSLQS	QQSYSTPVT	9
HISA 1,2,7-8	Bovine Histone	PrimaryNNK	SYAMS	AISPKGRRTYADSVKG	RDKLFDY	RASQSISSYLN	EASTLQS	QQEKMVPLT	4
HISA 6	"	"	SYAMS	RITPAGRRTTYADSVKG	PSPPFDY	RASQSISSYLN	HASILQS	QQGQHRPLT	1
HISA 3,9	"	"	SYAMS	RITPAGHRTTYADSVKG	QVSRFDY	-	-	-	2
HISA 10	"	"	SYAMS	TISPQGLRTTYADSVKG	GRPRFDY	-	-	-	1
HISA 4	"	"	SYAMS	TISPKGRSTTYADSVKG	TNRSFDY	RASQSISSYLN	RASRLQS	QQRAKKPPT	1
HISB 1,3	"	SomaticNNK	KYRMF	AISGGGSTVYADSVKG	GRWPFDY	RASQSISSYLN	AASSLQS	QQSYSTPHT	2
HISB 6	"	"	RYRMH	AISGGGSTVYADSVKG	NEPRFDY	RASQSISSYLN	AASSLQS	QQSYSTPST	1
HISB 2	"	"	RYRMG	AISGGGSTVYADSVKG	GYRKFDY	RASQSISSYLN	AASSLQS	QQSYSTPHT	1
HISB 4,7,9	"	"	RYRMG	AISGGGSTVYADSVKG	GYRKFDY	RASQSISSYLN	AASSLQS	QQSYSTPPT	3

FIG. 4A



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HISB5,8	"	"	RYRMG	AISGSGGSTYYADSVKG	GYRKFDY	RASQSIILRTLN	AASSLQS	QQSYSTPGT	2
NIP2,7,10	NIP-BSA	PrimaryNNK	SYAMS	RIPARGTVTHYADSVKG	GGLRFDY	RASQSISSYLN	HASALQS	QQSYRKPTT	3
NIP3	"	"	SYAMS	GISHTGSNTRYADSVKG	RHKGFYD	RASQSISSYLN	RASTLQS	QQGYRFPAT	1
NIP5,6,9	"	"	SYAMS	RIAPEGGRTKYADSVKG	GRYWFYD	RASQSISSYLN	RASRLQS	QQSRNAPT	3
NIP1,8	"	"	SYAMS	TISYLGEKTRYADSVKG	SRRTFDY	RASQSISSYLN	KASTLQS	QQRSRPPAT	2
NIP1	"	SomaticNNK	RYGMH	AISGSGGSTYYADSVKG	RGLGFDY	RASQSISSYLN	AASSLQS	QQSYSTPLT	1
NIP2-4,7	"	"	SYRMV	AISGSGGSTYYADSVKG	RGMAFDY	RASQSIHSRLS	AASSLQS	QQSYSTPLT	4
NIP5,6	"	"	KYNMH	AISGSGGSTYYADSVKG	ARWRFDY	RASQSISSYLN	AASSLQS	QQSYSTPIT	2
NIP8	"	"	RYRMH	AISGSGGSTYYADSVKG	TPRPFDY	RASQSIQMGLS	AASSLQS	QQSYSTPNT	1
NIP9	"	"	RYRMH	AISGSGGSTYYADSVKG	TPRPFDY	RASQSIENLL	AASSLQS	QQSYSTPLT	1
10CG1	FITC-BSA	PrimaryNNK	SYAMS	TISPYGKQTRYADSVKG	KSQHFDY	RASQSISSYLN	AASRLQS	QQRGCGPPT	1
10CG2	"	"	SYAMS	TITPRGSLTSYADSVKG	TAPPFYD	RASQSISSYLN	RASRLQS	QQSQRKPEST	1
10CG3	"	"	SYAMS	GISAYGTVTYADSVKG	RRAGFDY	RASQSISSYLN	RASRLQS	QQPRHMPQT	1
10CG5	"	"	SYAMS	SITNSGLATAYADSVKG	RSFRFDY	RASQSISSYLN	HASRLQS	QQRHTNPPPT	1
10CG6	"	"	SYAMS	GITTRGQTTRYADSVKG	TYPKFDY	RASQSISSYLN	NASRLQS	QQSKLSPVT	1
10CG7	"	"	SYAMS	TIPARGGHTKYADSVKG	SAKAFDY	RASQSISSYLN	QASNLQS	QQRSAGPLT	1
10DH1	"	SomaticNNK	MYRMG	AISGSGGSTYYADSVKG	RTFRFDY	RASQSISSYLN	AASSLQS	QQSYSTPRT	1
10DH2,3	"	"	SYAMT	AISGSGGSTYYADSVKG	KTGMFDY	RASQSIIRTLR	AASSLQS	QQSYSTPRT	2
11CG1	Human leptin	PrimaryNNK	SYAMS	AINRRGSATRYADSVKG	YLHTFDY	RASQSISSYLN	RASRLQS	QHPGLRPGT	1
11CG2,3	"	"	SYAMS	AINRRGSATRYADSVKG	YLHTFDY	RASQSISSYLN	AASALQS	QQSDLPFST	2
11DH2	"	SomaticNNK	RYRMW	AISGSGGSTYYADSVKG	RPSTFDY	RASQSIKLNLS	AASSLQS	QQSYSTPST	1

FIG. 4B



11DH3	"	"	RYRMW	AISGSGGSTYYADSVKG	RPSTFDY	RASQSIKORLH	AASSLQS	QQSYSTPST	1
12CG1,2	Human	Primary NNK	SYAMS	SIAPAGRHTYYADSVKG	NIRIFDY	RASQSISSYN	SASRLQS	QQRAGTPVT	2
12CG3	"	"	SYAMS	GITMTGRTTKYADSVKG	NISMIFDY	RASQSISSYN	QASRLQS	QQRVLRPPPT	1
12DH1,2,3	"	Somatic NNK	RYPMS	AISGSGGSTYYADSVKG	GFYAFDY	RASQSIVRVLT	AASSLQS	QQSYSTPHT	3
13CG1	BSA	Primary NNK	SYAMS	TITASGPNTTRYADSVKG	NHSTFDY	RASQSISSYN	RASHLQS	QQNRTAPRT	1
13CG2	"	Primary DVT	SYAMS	TIYYAGSNTYYADSVKG	GYTTFDY	RASQSISSYN	YASNLS	QQSDTSPTT	1
13CG3	"	Primary NNK	SYAMS	MIYPGGY-TKYADSVKG	NADLFDY	RASQSISSYN	TASRLQS	QQMRKPPAT	1
13DH1	"	Somatic NNK	LYNMV	AISGSGGSTYYADSVKG	EWSRFDY	RASQSIKSLI	AASSLQS	QQSYSTPKT	1
13DH2	"	"	GYMS	AISGSGGSTYYADSVKG	THDSFDY	RASQSIDRYLN	AASSLQS	QQSYSTPIT	1
13DH3	"	"	RYQMV	AISGSGGSTYYADSVKG	HLRFDY	RASQSIKYNLA	AASSLQS	QQSYSTPRT	1
14CG1,2,3	Hen egg	Primary NNK	SYAMS	EILPRGHTAYADSVKG	SGKHFDY	RASQSISSYN	NASTLQS	QQRKRLPET	3
14DH2,3	"	Somatic NNK	YYEML	AISGSGGSTYYADSVKG	PFMSFDY	RASQSIHODLV	AASSLQS	QQSYSTPRT	2
19CG1,3	Mouse IgG	Primary DVT	SYAMS	SIGSSGYGTGYADSVKG	GYYSFDY	RASQSISSYN	DASSLQS	QQSDSSPYT	2
19DH2	"	Somatic DVT	DYDMS	AISGSGGSTYYADSVKG	DGAGFDY	RASQSIGSSL	AASSLQS	QQSYSTPNT	1
20CG1	Human IgG	Primary NNK	SYAMS	AISGLGKQTRYADSVKG	GYSRFDY	RASQSISSYN	SASLLQS	QQLGTPPRT	1
20DH1	"	Somatic NNK	RYEMS	AISGSGGSTYYADSVKG	SWTLFDY	RASQSIFTNLD	AASSLQS	QQSYSTPPT	1
20DH2	"	"	RYEMS	AISGSGGSTYYADSVKG	SWTLFDY	RASQSIGTLRL	AASSLQS	QQSYSTPNT	1

\* of clone sequenced

FIG. 4C



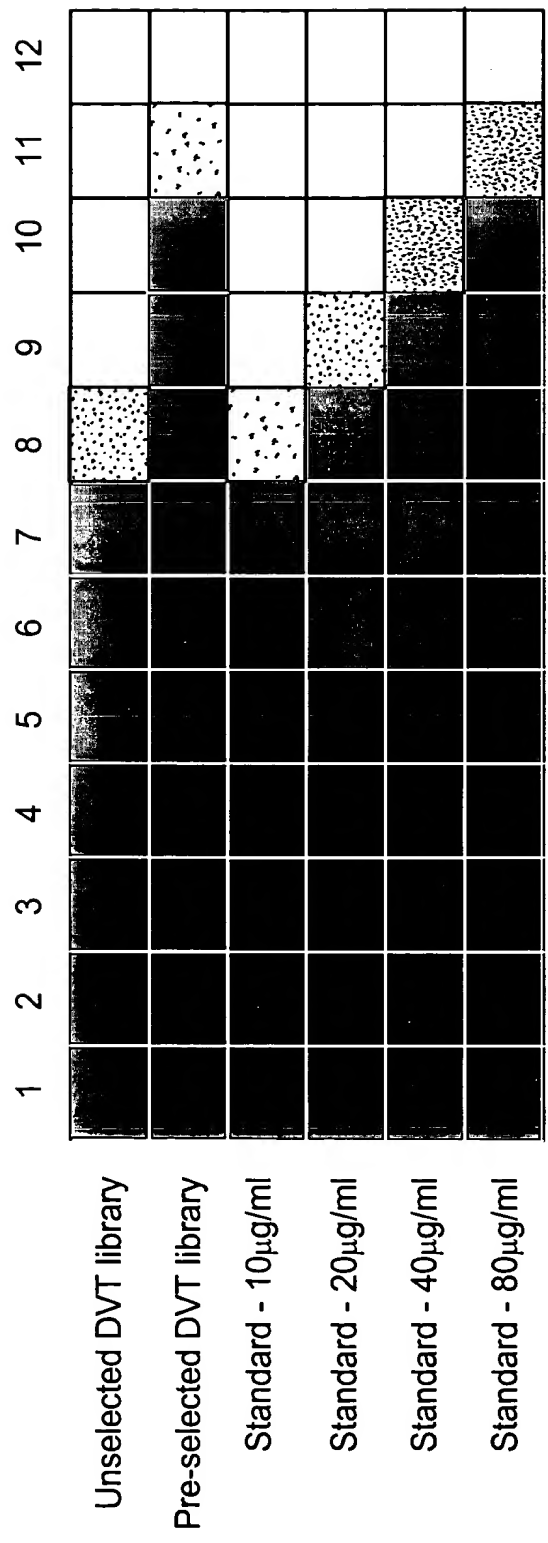


FIG. 5A

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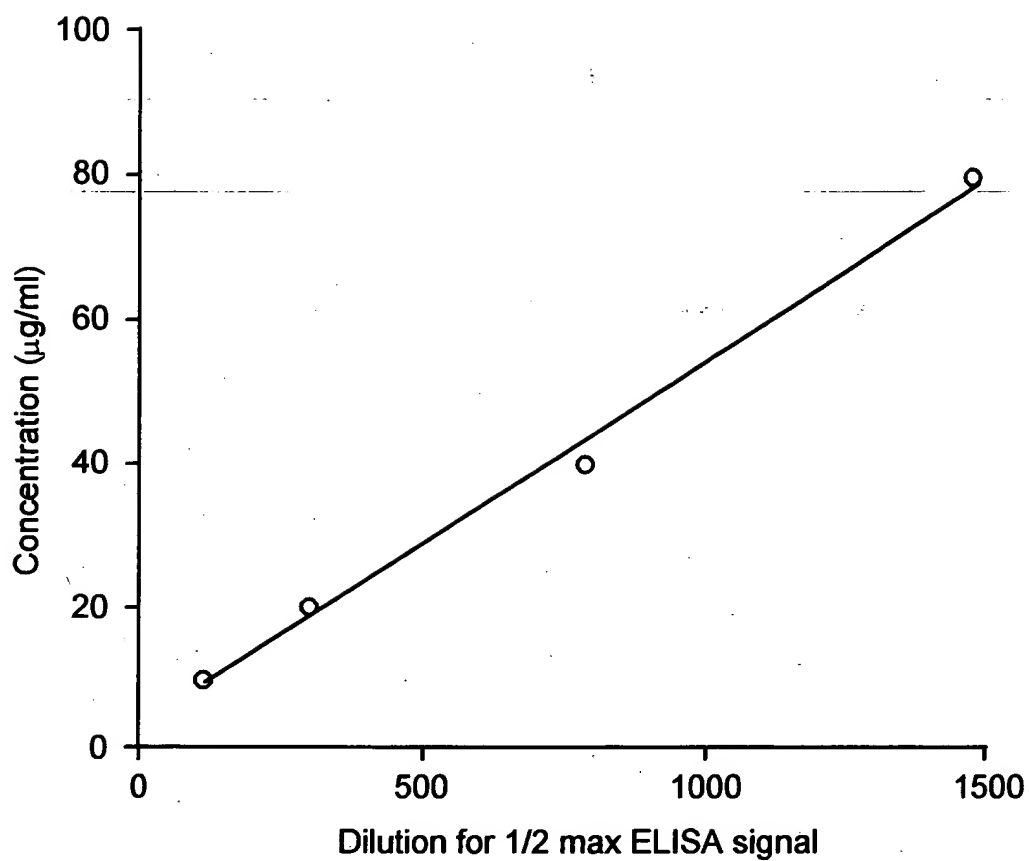


FIG. 5B

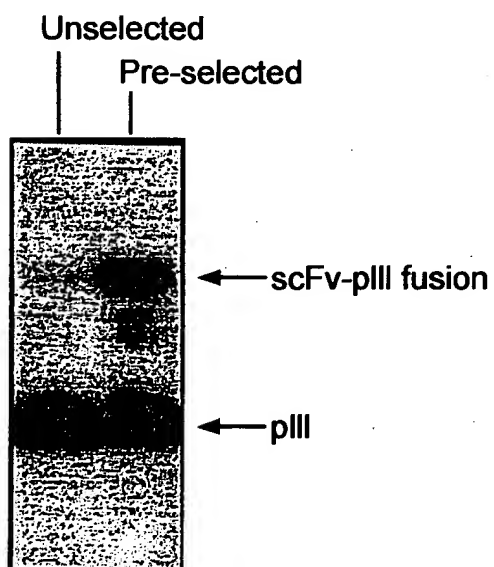


FIG. 6